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HP Z Workstations Frequently Asked Questions

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Family basics

Q . **What are the HP Z Workstations?**

A . HP Z Workstations are a family of revolutionary, next-generation workstation solutions designed to outperform, so you can outperform. Combining bold design, best-in-class engineering, robust tools and visual collaboration solutions, the HP Z Workstation Family—the HP Z200, HP Z200 SFF, HP Z400, HP Z600, and HP Z800—takes innovation, performance, and reliability to the next level to help give you and your business a competitive edge. HP Z Workstations are engineered to optimize the way processor, memory, graphics, OS, and software components work together, to deliver massive, whole-system computational power that helps you accomplish more with every minute of your time.

Q . **How is the HP Z200 Workstation different from its predecessor, the HP xw4600?**

A . The HP Z200 raises the bar for value workstations. Based on the next-generation Intel® microarchitecture, the HP Z200 has the new quad-core[1] Intel® Core™ i5/ i7 and Intel® Xeon® processors[2], dual-core[1] Intel® Core™ i3/i5 processors[3,4], and Intel® 3450 chipset, along with DDR3[5] 1333 MHz memory and other innovations. The table below summarizes the key differences between the two platforms. For more details, please refer to the product datasheet and QuickSpecs.

	HP xw4600 Workstation	HP Z200 Workstation
Operating system	Genuine Windows® XP Professional 32-bit available through downgrade rights from Windows Vista® Business***,**** Genuine Windows® XP Professional 64-bit available through downgrade rights from Windows Vista® Business***,**** Genuine Windows Vista® Business 32-bit**** Genuine Windows Vista® Business 64-bit**** Red Hat Enterprise Linux WS 5 64-bit HP Installer Kit for Linux (includes drivers for both 32-bit & 64-bit OS versions of Red Hat Enterprise Linux WS4 and WS5) Red Flag Linux v5 (available in China only)	Genuine Windows® 7 Professional 32-bit* Genuine Windows® 7 Professional 64-bit* HP Installer Kit for Linux (includes drivers for both 32-bit and 64-bit OS versions of Red Hat Enterprise Linux WS5) Novell Suse SLED 11 Red Hat Enterprise Linux WS5 (paper license as drop-in-the-box only)
Processor[1,2,3,4]	Quad-core Intel® Core™ 2 Quad processors, Dual-core Intel Core™ 2 Duo processors, 1066/1333 MHz FSB	Quad-core Intel® Core™ i5/ i7 and Intel® Xeon 3400 series processors, Dual-core Intel® Core™ i3/i5 processors with integrated graphics Integrated memory controller on all processors Intel® Turbo Boost

		Technology[6] (Core i5 and i7/Xeon 3400 only)
Chipset	Intel® X38	Intel® 3450 Express
Memory[5]	Up to 16 GB DDR2 800 MHz ECC	Up to 16 GB, DDR3 1333 MHz** (**actual memory speed dependent on processor capability)
Hard drives[7]	Up to 4 SATA or SAS drives (2 will require optional expander kits) 4 TB max (SATA), 1.8 TB max (SAS)	Up to (3) 3.5-inch 7200 rpm SATA drives: 160, 250, 320, 500 GB, 1, 1.5 TB, 4.5 TB max Up to (3) 2.5-inch 10K rpm SATA drives: 160, 300 GB, 0.9 TB max Up to (3) 2.5-inch SATA solid state drives: Intel X25-M 160 GB, 480 GB max
Slots	2 PCI Express Gen2 x16, 1 PCIe x8 (x4 electrical) slot, 1 PCIe x1 slot, 3 PCI slots	1 PCI Express Gen1 slot x1 mechanical/x1 electrical, 1 PCI Express Gen2 slots x16 mechanical/ x16 electrical (used for discrete graphics), 1 PCI Express Gen1 slot x4 mechanical/x1 electrical, 1 PCI Express Gen1 slot x16 mechanical/x4 electrical, 3 PCI slots (full-height, full-length)
Chassis improvements		New front bezel ID; Improved side cover panel mechanism for ease of operation
Manageability	ACPI, WOL and DMI 2.0 PXE 2.0, WfM 2.0, Broadcom management utility	All these plus DASH 1.0, 1.1 profiles and Intel AMT 6.0

Q . How is the HP Z200 SFF Workstation different from the HP Z200 (Minitower)?

A . The HP Z200 SFF dramatically reduces the footprint of a mainstream workstation and is ideal for professionals working in constrained workspaces. It is about 65% smaller by volume than the HP Z200 (see measurement comparison below). It is based on the same next-generation architecture and processors (Intel® Core™ i3/i5/i7 and Intel® Xeon® 3400 series[2,3,4]) as the HP Z200. However, the HP Z200 SFF does not have the expandability of the HP Z200 in terms of mid-range graphics, I/O slots, and drive bays. The table below summarizes the key differences between the two platforms. For more details, please refer to the product datasheet and QuickSpecs.

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	HP Z200 Workstation	HP Z200 SFF Workstation
Operating system	Genuine Windows® 7 Professional 32-bit* Genuine Windows® 7 Professional 64-bit* HP Installer Kit for Linux (includes drivers for both 32-bit and 64-bit OS versions of Red Hat Enterprise Linux WS5) Novell Suse SLED 11 Red Hat Enterprise Linux WS5 (paper license as drop-in-the-box only)	Genuine Windows® 7 Professional 32-bit* Genuine Windows® 7 Professional 64-bit* HP Installer Kit for Linux (includes drivers for both 32-bit and 64-bit OS versions of Red Hat Enterprise Linux WS5 and 64-bit Novell SLED 11) Novell Suse SLED 11 preloaded Red Hat Enterprise Linux WS5 (paper license as drop-in-the-box only)
Dimensions (H x W x D)	450 mm ×178 mm x 456 mm	338 mm x 100mm x 381mm
Hard drives[7]	Up to (3) 3.5-inch 7200 rpm SATA drives: 160, 250, 320, 500 GB, 1, 1.5TB, 4.5 TB max; Up to (3) 2.5-inch 10K rpm 10K SATA drives: 160, 300 GB, 0.9 TB max Up to (3) 2.5-inch SATA solid state drives: Intel X25-M 160 GB, 480 GB max	Up to (2) 3.5-inch 7200 rpm SATA drives6: 160, 250, 320, 500 GB, 1 TB 2.0 TB max; Up to (2) 2.5-inch 10K rpm SATA drives: 160, 300 GB, 0.6 TB max Up to (2) 2.5-inch SATA solid state drives: Intel X25-M 160 GB, 320 GB max
Ports	Front: 2 USB 2.0, IEEE 1394a (optional), 1 audio in, 1 audio out,, opt. 22-in-1 Media Card Reader Rear: 6 USB 2.0, 1 audio in, 1 audio out, 2 PS/2, 1 serial / 1 parallel (opt.), 2 PS/2, 1 RJ-45 (Gb NIC), 1 DVI-I single link and 1 DisplayPort (with integrated Intel HD graphics on dual-core processors only) Internal: 3 USB 2.0 ports	Front: 4 USB 2.0, 1 IEEE 1394a (optional), 1 audio in, 1 audio out, opt. HP 22-in-1 Media Card Reader Rear: 6 USB 2.0, 1 audio in, 1 audio out, 1 std/1 opt. serial port, 1 parallel (opt); 2 PS/2, 1 RJ-45 (Gb NIC), 1 VGA and 1 DisplayPort (with integrated Intel HD graphics on dual-core processors only) Internal: 4 USB 2.0 ports
Slots	1 PCI Express Gen1 x1 mech,x1 elect; 1 PCI Express Gen2 x16 mech,x16 elect; 1 PCI Express Gen1 x4 mech, x1 elect; 1 PCI Express Gen1 x16 mech, x4 elect; 3 PCI slots (F/Height, F/Length)	PCI Express Gen2 x16 mech, x16 elect (LP); 1 PCI Express Gen1 x16 mech, x4 elect (LP); 1 PCI Express Gen1 x1 mech, x1 elect (LP); 1 PCI slot (LP). All slots are LP (Low Profile).

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Q . **How is the HP Z400 Workstation different from its predecessor, the HP xw4600?**

A . The HP Z400 ushered in a new "Performance" category for entry workstations in March 2009. Based on next-generation Intel® microarchitecture, the HP Z400 features Intel® Xeon® 3500 and 3600 series processors[3,4] and the Intel® X58 Express chipset, along with other innovations. The table below summarizes the key differences between the two platforms. For more details please refer to the product datasheet and QuickSpecs.

	HP xw4600 Workstation	HP Z400 Workstation
Operating system	Genuine Windows® XP Professional 32-bit available through downgrade rights from Windows Vista® Business***,**** Genuine Windows® XP Professional 64-bit available through downgrade rights from Windows Vista® Business***,**** Genuine Windows Vista® Business 32-bit**** Genuine Windows Vista® Business 64-bit**** Red Hat Enterprise Linux WS 5 64-bit HP Installer Kit for Linux (includes drivers for both 32-bit & 64-bit OS versions of Red Hat Enterprise Linux WS4 and WS5) Red Flag Linux v5 (available in China only)	Genuine Windows® 7 Professional 32-bit* Genuine Windows® 7 Professional 64-bit* HP Installer Kit for Linux (includes drivers for both 32-bit and 64-bit OS versions of Red Hat Enterprise Linux WS4 and WS5) Novell Suse SLED 11 Linux Red Hat Enterprise Linux WS5 (as drop-in-the-box only)
Processor[1,2,3,4]	Quad-core Intel® Core™ 2 Quad processors, Dual-core Intel Core™ 2 Duo processors, 1066/1333 MHz FSB	Dual and quad core Intel® Xeon® 3500 and 3600 series processors, with integrated memory controller and Intel® QuickPath Architecture Optional HP Liquid Cooling
Chipset	Intel® X38	Intel® X58 Express
Memory[5]	Up to 8 GB DDR2 800 MHz ECC	Up to 24 GB, DDR3 1333 MHz** (**actual memory speed dependent on processor capability)
Hard drives[7]	Up to 4 SATA or SAS drives (2 will require optional expander kits), 4 TB max (SATA), 1.8 TB max (SAS)	Up to (4) 3.5-inch 7200 rpm SATA drives: 160, 250, 320, 500 GB, 1, 1.5 TB, 2, TB, 8 TB max Up to (4) 2.5-inch 10K rpm SATA drives: 160, 300, 600 GB SFF, 2.4 TB max; Up to (4) 3.5-inch 15K rpm SAS drives: 146, 300, 450, 600 GB, 2.4 TB max Up to (4) 2.5-inch SATA

		solid state drives: Intel X25-M 160 GB, 640 GB max
Ports	Front: 2 USB 2.0, 1 headphone, 1 microphone, IEEE 1394 (optional), 16-in-1 Media Card Reader (optional) Rear: 7 USB 2.0, 1 standard serial port (opt. 2nd), 1 parallel, 2 PS/2, 1 external SATA 1.5 Gb/s, 1 RJ-45 to integrated Gigabit LAN, audio in, audio out, microphone Internal: 3 USB 2.0	Front: 2 USB 2.0, IEEE 1394a (optional), (standard front output), IEEE 1394b (optional), 1 microphone in, 1 headphone out, 22-in-1 Media Card Reader (optional), Rear: 6 USB 2.0, 1 audio in, 1 audio out, 1 microphone in, 2 PS/2, 1 RJ-45 to integrated Gigabit LAN, 1 serial (optional) Internal: 4 USB 2.0
Slots	2 PCI Express Gen2 x16, 1 PCIe x8 (x4 electrical) slot, 1 PCIe x1 slot, 3 PCI slots	2 PCI Express Gen2 x16, 1 PCI Express Gen2 x8 (x4 electrical), 1 PCI Express Gen1 x8 (x4 electrical), 2 PCI
Chassis improvements		85% and 89% power supplies New front bezel ID, quieter hard drive acoustics, improved side cover panel mechanism for ease of operation

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Q . **How is the HP Z600 Workstation different from its predecessor, the HP xw6600?**

A . The HP Z600 raises the bar for midrange workstations with the revolutionary new Intel® Xeon® processors and chipset architecture and completely new industrial design. The table below summarizes the key differences between the two platforms. For more details please refer to the product datasheet and QuickSpecs.

	HP xw6600 Workstation	HP Z600 Workstation
Operating system	Genuine Windows® XP Professional 32-bit available through downgrade rights from Windows Vista® Business***,**** Genuine Windows® XP Professional 64-bit available through downgrade rights from Windows Vista® Business***,**** Genuine Windows Vista® Business 32-bit**** Genuine Windows Vista® Business 64-bit**** Red Hat Enterprise Linux® WS 5 64-bit HP Installer Kit for Linux (includes drivers for both 32-bit and 64-bit OS versions of Red Hat Enterprise Linux WS4 and WS5)	Genuine Windows® 7 Professional 32-bit* Genuine Windows® 7 Professional 64-bit* HP Installer Kit for Linux (includes drivers for both 32-bit and 64-bit OS versions of Red Hat Enterprise Linux WS4 and WS5) Red Hat Linux WS5 (as drop-in-the-box only)
Processor[1,2,3,4]	Quad-core Intel® Xeon® processor E5200 and 5400 series, 1066/1333 MHz FSB	Quad- and six-core Intel® Xeon® processor 5500 and 5600 series, 800/1066/1333 MHz, with integrated memory controller and Intel QuickPath Architecture Up to 2.93 GHz
Chipset	Intel® 5400	Intel® 5520
Memory[5]	Up to 32 GB DDR2-667 ECC; 8 DIMM slots	6 DIMM slots, up to 48 GB, 6-channel DDR3 1333 MHz**, 3 channels per CPU (**actual memory speed dependent on processor capability)
Hard drives[7]	Up to 3 SATA drives (with the optional optical bay converter kit), or up to 3 of the small form factor SAS drives (with the HDD bay converter kit); 3 TB max; 80 GB (7200 rpm) SATA 3.0 Gb/s; or 160, 250, 500, or 1000 GB (7200 rpm) SATA 3.0 Gb/s NCQ; or 80 or 160 GB	Up to (3) 3.5-inch 7200 rpm SATA drives: 160, 250, 320, 500 GB, 1, 1.5 TB,2 TB, 6 TB max Up to (4) 2.5-inch 10K rpm SATA drives: 160, 300, 600 GB SFF, 2.4 TB max Up to (3) 3.5-inch 15K rpm SAS drives: 146, 300, 450 GB, 1.35 TB max Up to (4) 2.5-inch SATA

	(10K rpm) SATA 1.5-Gb/s NCQ; or 300 GB (10K rpm) SATA 3.0 Gb/s NCQ; or 73 or 146 GB7 (10K rpm) 2.5" SAS; or 73, 146, 300, or 450 GB7 (15K rpm) SAS	solid state drives: Intel X25-M 160 GB, 640 GB max Note: Third and fourth drives occupy one external optical bay.
Ports	Front: 2 USB 2.0; 1 IEEE 1394 (optional); 1 microphone in; 1 headphone out Rear: 5 USB 2.0; 1 serial (optional); 2 PS/2; 1RJ-45; 1 audio in; 1 audio out; 1 microphone in Internal: 1 USB 2.0	Front: 3 USB 2.0, 1 IEEE 1394a, 1 microphone in, 1 headphone out Rear: 6 USB 2.0, 1 audio in, 1 audio out, 1 microphone in, 2 PS/2, 1 RJ-45 to integrated Gigabit LAN, 1 serial (optional) Internal: 3 USB 2.0
Slots	6 full length slots: 2 PCIe x16 Gen2 Graphics2, 2 PCIe (x8 mechanically, x4 electrically), 2 legacy PCI slots	2 PCI Express Gen2 x16, 1 PCI Express Gen2 x8 mechanical/x4 electrical, 1 PCI Express Gen1 x8 mechanical/x4 electrical, 2 PCI
Network	Integrated Broadcom 5755 NetXtreme Gigabit PCIe; optional Broadcom 5751 NetXtreme Gigabit PCIe; optional Intel Pro 1000 PT Gigabit Ethernet Controller (PCIe)	Integrated Broadcom 5764 LAN, Infineon TPM 1.2, Optional Broadcom NIC, Optional Intel NIC
Chassis improvement		85% power supply, integrated handles, and cable-free connections

Q . **How is the HP Z800 Workstation different from its predecessor the HP xw8600?**

A . The HP Z800 raises the bar for all workstations with the revolutionary new Intel® Xeon® processors and chipset architecture, along with other innovations. The table below summarizes the key differences between the two platforms. For more details please refer to the product datasheet and QuickSpecs.

	HP xw8600 Workstation	**HP Z800 Workstation**
Operating system	Genuine Windows® XP Professional 32-bit available through downgrade rights from Windows Vista® Business***,**** Genuine Windows® XP Professional 64-bit available through downgrade rights from Windows Vista® Business***,**** Genuine Windows Vista® Business 32-bit**** Genuine Windows Vista® Business 64-bit**** Red Hat Enterprise Linux WS 5 64-bit HP Installer Kit for Linux	Genuine Windows® 7 Professional 32-bit* Genuine Windows® 7 Professional 64-bit* HP Installer Kit for Linux (includes drivers for both 32-bit and 64-bit OS versions of Red Hat Enterprise Linux WS4 and WS5) Red Hat Enterprise Linux WS5 (as drop-in-the-box only)

	(includes drivers for both 32-bit and 64-bit OS versions of Red Hat Enterprise Linux WS4 and WS5)	
Processor[1,2,3,4]	Quad-core Intel® Xeon® processor 5200 and 5400 series, 1066/1333/1600 MHz FSB	Quad-and six-core Intel® Xeon® processor 5500 and 5600 series, 800/1066/1333 MHz, with integrated memory controller and Intel QuickPath Architecture Up to 3.33 GHz; supports dual 130W processors
Chipset	Intel® 5400	Intel® 5520 (dual)
Memory[5]	DDR2-667 and DDR2-800 ECC Memory; up to 128 GB available with 16 DIMM slots and 8 GB DDR2-667 DIMMs	12 DIMM slots, up to 192 GB, 6-channel DDR3 1333 MHz**, 3 channels per CPU (**actual memory speed dependent on processor capability)
Hard drives[7]	Up to 5 SATA drives; 5 TB max; 80 GB (7200 rpm) SATA 3.0 Gb/s; or 160, 250, 500, or 1000 GB (7200 rpm) SATA 3.0 Gb/s NCQ; or 80 or 160 GB (10K rpm) SATA 1.5-Gb/s NCQ; 300 GB (10K rpm) 2.5" SATA 3.0 Gb/s NCQ; 73 or 146 GB (10K rpm) 2.5" SAS; or 73, 146, 300, or 450 GB (15K rpm) SAS	Up to (5) 3.5-inch 7200 rpm SATA drives: 160, 250, 320, 500 GB, 1, 1.5, 2 TB; 10 TB max Up to (6) 2.5-inch 10K rpm SATA drives: 160, 300, 600 GB SFF; 3.6 TB max Up to (5) 3.5-inch 15K rpm SAS drives: 146, 300, 450, 600 GB; 3 TB max Up to (5) 2.5-inch SATA solid state drives: Intel X25-M 160 GB, 800 GB max
Ports	Front: 2 USB 2.0; IEEE 1394; 1 microphone in; 1 headphone out Internal: 1 USB 2.0 Rear: 5 USB 2.0; 1 IEEE 1394; 1 serial; 2 PS/2; 2 RJ-45 to integrated Gigabit LAN; 1 audio in; 1 audio out; 1 microphone in	Front: 3 USB 2.0, 1 IEEE 1394a, 1 microphone in, 1 headphone out Internal: 3 USB 2.0 Rear: 6 USB 2.0, 1 IEEE 1394a, 1 serial, 2 PS/2, 2 RJ-45 to integrated Gigabit LAN; 1 audio in, 1 audio out, 1 microphone in
Slots	7 full length slots: 2 PCIe x16 Gen2 Graphics8, 2 PCIe (x8 mechanically, x4 electrically), 1 PCIe x8 (switchable as x1 or x8), 1 PCI-X 133 MHz slot, and 1 PCI 32-bit/33 MHz slot	7 slots: 2 PCI Express Gen2 x16, 2 PCI Express Gen2 x16 mechanical/x8 electrical, 1 PCI Express Gen2 x8 mechanical/x4 electrical, 1 PCI Express Gen1 x8 mechanical/x4 electrical, 1 PCI
Network	Dual integrated Broadcom 5755 NetXtreme Gigabit PCIe; optional Broadcom 5751 NetXtreme Gigabit PCIe; optional Intel Pro 1000 PT Gigabit Ethernet Controller (PCIe)	Dual Integrated Broadcom 5764 LAN, Infineon TPM 1.2, Optional Broadcom NIC, Optional Intel NIC

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HP Z200 Workstation

Q . **What's new with the HP Z200?**

A .

- New look and chassis improvements
- Genuine Windows® 7 Professional*
- Intel® 3450 Express chipset
- Quad-core Intel® Core™ i5/ i7 and Intel® Xeon® and dual-core Intel Core™ i3/i5 processors[1,2,3,4]
- Memory controller integrated into processor
- Intel® Turbo Boost Technology[6]
- Intel® AMT6.0
- Integrated graphics (on dual-core processors only)
- 16 GB of total DDR3[5] 1333 MHz system memory
- Full PCI Express Gen2 compliance

Q . **What is special about the new HP Z200 Workstation?**

A . The HP Z200 Workstation is the latest value personal workstation from HP and is positioned as the replacement to the existing HP xw4600 Workstation. It brings a new level of performance and functionality to the entry workstation space by introducing the new quad-core Intel® Core™ i5/ i7 and Intel® Xeon® 3400 series and dual-core Intel® Core™ i3/i5 processors[1,2,3,4] with the revolutionary new Intel® Turbo Boost architecture[6]. This is complemented by integrated graphics on Intel Core i3/i5 processors, along with good expandability with up to 6 drive bays and 7 I/O slots.

Q . **What are the main differences between the quad-core Intel® Core™ i5-700 series/i7-800 series processors and the quad-core Intel® Xeon® 3400 series processor?**

A . The new quad-core[1] processor stack from Intel has two versions—a "Core"-branded PC version and "Xeon"-branded server/workstation version. These two stacks are equivalent in performance, but ECC memory is only supported on the Xeon processors. The Intel Core i7 processors are targeted mainly toward high-end consumer PCs, and some high end commercial desktop PCs offer these, too. The Intel Xeon processor 3400 series is Intel's recommended processor for workstations, because it offers multi-core performance and reliability with ECC memory support. The Intel Xeon 3400 series is also a broader offering than the Intel Core i7, offering a total of five quad-core[1] bins versus two Intel Core i7 bins. ECC memory is a key benefit offered by workstations, enhancing data integrity and avoiding potential system crashes and data corruption by eliminating single bit memory errors, which is an important criterion for workstation customers who typically run mission-critical applications.

Q . **How will the HP Z200 Workstation be sold and distributed?**

A . The HP Z200 Workstation will be sold on the Web, via distributor/VARs (indirect/direct channels), and HP sales force.

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HP Z200 SFF Workstation

Q . **What's new with the HP Z200 SFF?**

A .

- Chassis that's about 65% smaller than the HP Z200 convertible minitower (338 mm x 100 mm x 378 mm vs. 450 mm x 178 mm x 456mm (HWD))
- Genuine Windows® 7 Professional*
- Intel® PCH 3450 chipset
- Quad-core Intel® Core™ i5/ i7 and Intel® Xeon® and dual-core Intel Core™ i3/i5 processors[1,2,3,4]
- Memory controller integrated into processor
- Integrated graphics (on dual-core processors only)
- 16 GB of total DDR3[5] 1333 MHz system memory
- Full PCI Express Gen2 compliance

Q . **Why is HP announcing a "small workstation" now? Aren't workstations supposed to be larger and more expandable than PCs?**

A . As a market leader, HP has for many years successfully addressed the workstation market requirements with our broad range of minitower form factor workstations. However, we have recently seen the emergence of some market segments which require workstation functionality in a significantly smaller form factor, especially in space-constrained environments.

Moreover, the general desktop PC market has seen a significant trend toward smaller form factors as part of the overall form factor mix because of several factors—shrinking work spaces, shrinking technology, and greater energy efficiency awareness. HP desktops have successfully addressed this market and this trend is likely to continue. Many of these factors are applicable to workstation customers as well, and now with the HP Z200 SFF, customers can experience workstation-class performance, combined with standard workstation reliability features such as ECC memory and professional 2D and 3D graphics, in a surprisingly small package at a surprisingly affordable price.

Q . **What is special about the new HP Z200 SFF Workstation?**

A . The HP Z200 SFF Workstation is a "pocket powerhouse" that's small in size, big on performance. Like the HP Z200 Convertible Minitower workstation, it brings a new level of performance and functionality to the entry workstation space by introducing new quad-core Intel® Core™ i5/ i7 and Intel® Xeon® 3400 series and dual-core Intel® Core™ i3/i5 processors[1,2,3,4] with the revolutionary new Intel® Turbo Boost architecture[6], and likewise offers up to 16 GB of DDR3 ECC memory[5]. It also offers a choice of 2D and entry 3D professional graphics cards along with ISV certifications for many leading workstation applications. All this capability is squeezed into a sleek and streamlined chassis that is about 65% smaller than the HP Z200 convertible minitower.

Q . **What are the main differences between the quad-core Intel® Core™ i5-700 series/i7-800 series processors and the quad-core Intel® Xeon® 3400 series processor?**

A . The new quad-core[1] processor stack from Intel has two versions—a "Core"-branded PC version and "Xeon"-branded server/workstation version. These two stacks are equivalent in performance, but ECC memory is only supported on the Xeon processors. The Intel Core i7 processors are targeted mainly toward high-end consumer PCs, and some high end commercial desktop PCs offer these, too. The Intel Xeon processor 3400 series is Intel's recommended processor for workstations, because it offers multi-core performance and reliability with ECC memory support. The Intel Xeon 3400 series is also a broader offering than the Intel Core i7, offering a total of five quad-core[1] bins versus two Intel Core i7 bins.

ECC memory is a key benefit offered by workstations, enhancing data integrity and avoiding potential system crashes and data corruption by eliminating single bit memory errors, which is an important criterion for workstation customers who typically run mission-critical applications.

Q . **How will the HP Z200 SFF Workstation be sold and distributed?**

A . The HP Z200 SFF Workstation will be sold on the Web, via distributor/VARs (indirect/direct channels), and the HP sales force.

HP Z400 Workstation

Q . **What's new with the HP Z400?**

A .

- New look and chassis improvements
- Genuine Windows ® 7 Professional*
- Intel® X58 Express chipset
- Intel® Xeon® 3500 and 3600 series processors[3,4]
- Intel® QuickPath Technology
- 24 GB of total DDR3[5] 1333 MHz system memory (with 4 GB DIMMs)
- More PCI Express Gen2 lanes for better I/O capacity

Q . **What is special about the HP Z400 Workstation?**

A . The HP Z400 Workstation is the premium mainstream (single-processor) personal workstation from HP and positioned above the HP Z200 Workstation. It brings a higher level of performance and expandability to the mainstream workstation space with support for higher-end quad-core Intel Xeon processors with the revolutionary new Intel QuickPath architecture, greater memory bandwidth with a tri-channel memory architecture, and enhancements that support up to 24 GB of memory. This is complemented by a range of new graphics cards from both ATI and NVIDIA, along with good expandability with up to 5 drive bays, 6 I/O slots, and integrated front FireWire® port access. A new-look, tool-less chassis also includes acoustic enhancements and ease of serviceability.

Q . **Intel has also announced the Intel Core i7 series of quad-core processors. How are those different from the Intel Xeon 3500 series quad-core processors available on the HP Z400? Why does HP not offer the Intel Core i7 series on the HP Z400?**

A . The Intel Xeon processors are purposely built for workstations and servers. They support Error Checking and Correcting (ECC) memory logic, and are the logical choice for environments where professionals need the performance to work efficiently and accurately by avoiding data corruption and/or computer crashes. The Intel Core i7 processor line from Intel is targeted at high-end enthusiasts and gamers, and while it shares similar features and performance as its Intel Xeon counterparts, it lacks the support of ECC memory, which is integral for the mission-critical environments served by workstations.

Q . **How will the HP Z400 Workstation be sold and distributed?**

A . The HP Z400 Workstation will be sold on the Web, via distributor/VARs (indirect/direct channels), and HP sales force.

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HP Z600 Workstation

Q . What's new with the HP Z600?

A .

- New industrial design for the chassis
- Genuine Windows ® 7 Professional*
- Intel® 5520 chipset
- Intel® Xeon® processors
- Intel® QuickPath Technology
- 6 DIMM slots
- 48 GB of total DDR3[5] 1066MHz system memory (with 4 GB DIMMs)
- More PCI Express Gen2 lanes

Q . What is special about the new HP Z600 Workstation?

A . The HP Z600 Workstation is the latest mid-range multi-processor personal workstation from HP that replaces the existing xw6600 Workstation. It is a superset of the performance and functionality of the previous workstations and provides a low-power solution for customers at or near power capacity in their facilities. It has a new expandable chassis with 5+ bays and 6 slots. The chassis is rackable and works with the shelving kits. It supports high-performance I/O features like dual PCI Express graphics, 4 PCI Express I/O, 2 legacy PCI slots, USB 2.0, SATA 3 Gb/s, Gigabit NIC, and IEEE 1394. Six DIMM slots allows for significant memory capacity with lower cost parts.

Q . How will the HP Z600 Workstation be sold and distributed?

A . The HP Z600 Workstation will be sold on the Web, via distributor/VARs (indirect/direct channels), and HP sales force.

Q . How is the HP Z600 Workstation different from the HP Z800 Workstation, which is also a dual Intel Xeon system?

A .

	HP Z600 Workstation	HP Z800 Workstation
Operating system	Genuine Windows® 7 Professional 32-bit* Genuine Windows® 7 Professional 64-bit* HP Installer Kit for Linux (includes drivers for both 32-bit and 64-bit OS versions of Red Hat Enterprise Linux WS4 and WS5) Red Hat Linux WS5 (as drop-in-the-box only)	Genuine Windows® 7 Professional 32-bit* Genuine Windows® 7 Professional 64-bit* HP Installer Kit for Linux (includes drivers for both 32-bit and 64-bit OS versions of Red Hat Enterprise Linux WS4 and WS5) Red Hat Enterprise Linux WS5 (as drop-in-the-box only)
Processor[1,2,3,4]	Quad-and six-core Intel® Xeon® processor 5500 and 5600 series, 800/1066/1333 MHz, with integrated memory controller and Intel	Quad- and six-core Intel® Xeon® processor 5500 and 5600 series, 800/1066/1333 MHz, with integrated memory controller and Intel

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	QuickPath Architecture Up to 2.93GHz	QuickPath Architecture Up to 3.46 GHz; supports dual 130W processors
Chipset	Intel® 5520	Intel® 5520 (dual)
Memory[5]	6 DIMM slots, up to 48 GB, 6-channel DDR3 1333 MHz**, 3 channels per CPU (**actual memory speed dependent on processor capability)	12 DIMM slots, up to 192 GB, 6-channel DDR3 1333 MHz**, 3 channels per CPU (**actual memory speed dependent on processor capability)
Hard drives[7]	Up to (3) 3.5-inch 7200 rpm SATA drives: 160, 250, 320, 500 GB, 1, 1.5* TB, 4.5 TB max Up to (4) 2.5-inch 10K rpm SATA drives: 160, 300, 600 GB SFF, 2.4 TB max Up to (3) 3.5-inch 15K rpm SAS drives: 146, 300, 450 GB, 1.35 TB max Up to (4) 2.5-inch SATA solid state drives: Intel X25-M 160 GB, 640 GB max Note: Third and fourth drives occupy one external optical bay.	Up to (5) 3.5-inch 7200 rpm SATA drives: 160, 250, 320, 500 GB, 1, 1.5 TB, 2 TB, 10 TB max Up to (6) 2.5-inch 10K rpm SATA drives: 160, 300, 600 GB SFF, 3.6 TB max Up to (5) 3.5-inch 15K rpm SAS drives: 146, 300, 450, 600 GB, 3 TB max (5 x 600 GB) Up to (5) 2.5-inch SATA solid state drives: Intel X25-M 160 GB, 800 GB max
Ports	Front: 3 USB 2.0, 1 IEEE 1394a, 1 microphone in, 1 headphone out Rear: 6 USB 2.0, 1 audio in, 1 audio out, 1 microphone in, 2 PS/2, 1 RJ-45 to integrated Gigabit LAN, 1 serial (optional) Internal: 3 USB 2.0	Front: 3 USB 2.0, 1 IEEE 1394a, 1 microphone in, 1 headphone out Rear: 6 USB 2.0, 1 IEEE 1394a, 1 audio in, 1 audio out, 1 microphone in, 2 PS/2, 2 RJ-45 to integrated Gigabit LAN, 1 serial Internal: 3 USB 2.0
Slots	2 PCI Express Gen2 x16, 1 PCI Express Gen2 x8 mechanical/x4 electrical, 1 PCI Express Gen1 x8 mechanical/x4 electrical, 2 PCI	2 PCI Express Gen2 x16, 2 PCI Express Gen2 x16 mechanical/x8 electrical, 1 PCI Express Gen2 x8 mechanical/x4 electrical, 1 PCI Express Gen1 x8 mechanical/x4 electrical, 1 PCI
Network	Integrated Broadcom 5764 LAN, Infineon TPM 1.2, Optional Broadcom NIC, Optional Intel NIC	Dual Integrated Broadcom 5764 LAN, Infineon TPM 1.2, Optional Broadcom NIC, Optional Intel NIC

HP Z800 Workstation

Q . **What's new with the HP Z800 Workstation?**

A . The HP Z800 is based on Intel® Xeon® 5500 and 5600 Series processors[3,4] and Dual Intel® 5520 chipset. This processor/chipset combination represents a revolutionary step forward in both functionality and system performance. With the new processor and chipset technology, Intel is launching a new architecture that is significantly different than previous Intel products.

This new architecture employs the new Intel® QuickPath Technology, which directly connects the system memory to the processor, directly connects the processors together, and provides a more direct connection from the processor to the system I/O via the Intel 5520 chipset.

Q . **What is special about the new HP Z800 Workstation?**

A . The HP Z800 Workstation is the latest high-end Windows/Linux workstation from HP that replaces the existing HP xw8600 workstation. The HP Z800 is a superset, in both performance and functionality, of the HP xw8600 Workstation. It has a highly expandable chassis: 5 3.5" or 6 2.5" HDDs, optional floppy, and 3 5.25" external bays. The chassis is rackable and is available with sliding rail and shelving kits. It supports high performance I/O features like 8 channel SAS, 2 PCI-Express Gen2 x16 (8 GB/s) , 2 PCI-Express Gen2 x8 (4 GB/s) slots, 1 PCI-Express Gen2 x4 (2 GB/s) slot, 1 PCI-Express x4 (1 GB/s) slot, and 1 Legacy PCI 32-bit/33 MHz slot. Also provided are 12 (3 front, 3 internal, 6 rear) USB 2.0, and 2 IEEE 1394a (1 front and 1 rear).

Q . **How will the HP Z800 Workstation be sold and distributed?**

A . The HP Z800 Workstation will be sold on the Web, via distributor/VARs (indirect/direct channels), and HP sales force.

Q . **How do I differentiate the HP Z800 Workstation?**

A . The HP Z800 Workstation will compete against other vendors' Intel Xeon-based workstations. The HP Z800 is a highly expandable, rack mountable box, with the latest, high-performance, I/O technologies for ultimate performance. Only HP can provide the breadth of products that customers require in the form of Windows and Linux. The HP Z800 Workstation will continue HP's tradition of outstanding quality and thorough ISV qualification. Customers will be able to deploy HP Z800 Workstations into their mission-critical design, analysis, and content creation environments knowing that HP is there to support them after the initial purchase.

Intel processors

Q . **What is 64-bit extension technology (Intel EM64T)?**

A . 64-bit extension technology (Extended Memory 64 Technology or EM64T) was first introduced in 2004 and continues on the new products. . The enhancement allows the processor to run 64-bit code and access larger amounts of memory.

Q . **Will existing 32-bit software run, without being re-compiled, on the new processors with 64-bit extension technology?**

A . If you are running a 32-bit O/S, yes. An IA-32 processor with 64-bit extension technology is 100% compatible with existing 32-bit applications when running with an existing 32-bit O/S. If you are running a 64-bit O/S the Intel processor supports "compatibility" mode, where all 32-bit applications will continue to run under a 64-bit O/S without being modified or recompiled.

Q . **Is the processor support the same for the HP Z600 and HP Z800?**

A . The HP Z600 supports processors that have a maximum power of up to 95W. The Z800 can support processors with power up to 130W, so it has a broader processor offering.

Q . **Does my customer have to recompile their applications to see the performance advantages of the new Intel Xeon processors?**

A . No, testing and Intel data indicate that technical applications show immediate performance increases due to the new processor and memory architecture.

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Q . **How do I add the second processor? Is a system board swap required?**

A . CPU upgrades are field and customer installable without system board swaps using the HP Z Workstations Workstation CPU upgrade kit. The second processor must be the same speed and stepping as the first.

Q . **What are the benefits of quad-core[1] processors?**

A . Intel quad-core processors provide double the processing resources in the same footprint compared to similar dual-core offerings. Quad-core processors are ideal for usage models requiring multi-tasking (running many applications or simulations at once); working on spreadsheets while listening to music with virus checkers and system backups running (power office); or using applications that can split a task across processors (multi-threaded), like animation/rendering in Digital Content Creation.

Q . **Does the quad-core processor offer any performance improvement over dual-core processors?**

A . Yes, the new quad-core processors from Intel offer significant performance improvement over previous generation Dual- and quad-core processors on many applications and in many work environments.

Q . **Dual-core. Dual-socket. Quad-core. What do these terms mean?**

A .

Dual socket	Two physical CPU sockets
Dual-core	Each CPU package has exactly two processor cores
Quad-core	Each CPU package has exactly four processor cores
Dual-processor	A system with two processors in two sockets

Q . **What is Intel® Turbo Boost Technology[6]?**

A . Intel Turbo Boost Technology is built into the new Intel® microarchitecture and automatically allows processor cores to run faster than the base operating frequency if it's operating below power, current, and temperature specification limits.

Q . **How much faster will my processor run with Intel Turbo Boost Technology[6]?**

A . The frequency increases come in discrete 133 MHz steps. The number of steps possible will depend on the processor model and the number of processor cores actively running processes. For example, the Intel® Xeon® X5570 processor[3,4] has a marked frequency of 2.93 GHz. The number of frequency steps available in Turbo Mode is 2 if 3 or 4 cores are actively running processes, and 3 steps if only 1 or 2 cores are actively running processes. This means that the processor frequency could be as high as 3.2 GHz if 3 or 4 cores are active, and as high as 3.33 GHz if only 1 or 2 cores are active. The actual increase will also be affected by the temperature and current draw of the CPU. If the CPU gets too hot, or draws too much current, the cores will step down in frequency to prevent damage to the component.

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Liquid Cooling

Q . **Will HP offer Liquid Cooling on the new HP Z Workstations?**

A . HP Liquid cooling is offered on both the HP Z400 and HP Z800. This liquid cooling solution will be implemented for the processors ONLY.

Q . **Why did HP choose to implement Liquid Cooling?**

A . HP places a large priority on satisfying customer requirements. Achieving the lowest acoustics levels is a priority for HP Workstations. HP implements Liquid Cooling in a "holistic" fashion across both processors. Implementing Liquid Cooling provides extremely efficient heat removal from the processors, removing the fans from the processors and allows the remaining system fans to run at greatly reduced RPMs, which reduces the overall acoustic output levels. Configurations where the processor fans are not the dominant noise source will not benefit from liquid cooling. Examples of possible configurations where processors are not the dominate noise source are 4 GB or 8 GB fully loaded memory configurations or configurations with 15K SAS drives.

Q . **How do I order Liquid Cooling?**

A . Liquid Cooling is a Configure-to-Order option. This provides you with a choice between Air Cooling and Liquid Cooling.

Q . **Where can I learn more about HP's Liquid Cooling?**

A . Find additional information on the Liquid Cooling option in the "Reducing Acoustical Noise in Personal Workstations by Increasing Cooling Efficiency" whitepaper found at: http://www.hp.com/go/wswhitepapers. Additional information can be found at: http://h20331.www2.hp.com/Hpsub/downloads/ZLiquidCooling_MWP_Aug09.pdf.

Dual PCI Express Gen2 x16 graphics and I/O

Q . **Graphically, what is special with the HP Z Workstations?**

A . HP Workstations support one of the widest ranges of professional 2D up to Ultra High-End 3D graphics from ATI and NVIDIA, for your most visually-demanding applications. Depending on the workstation you choose, you can drive up to eight displays and take advantage of PCI Express Gen2 expansion slots that include: 2 PCI-E Gen2 x16 slots, 2 PCI-E Gen2 x8 slots, 1 PCI-E Gen2 x4 slot (varies by model).

Q . **Does the PCI Express channel deliver any advantage beyond accommodating two graphics cards?**

A . Yes. The PCI Express channels form general-purpose I/O busses that may be used for any device that is able to take advantage of the PCI Express interface

Q . **What is meant by PCI Express (PCIe)?**

A . PCIe is the latest generation of PCI architecture. PCI Express is a radically new implementation of the PCI computer bus that uses existing PCI programming concepts and communications standards, but is based on a much faster serial communications system. PCI Express x16 slots provides up to eight times the aggregate bandwidth of a PCI-X 133 MHz 64-bit slot (8 GB/s bidirectional).

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Q . **What's the advantage of PCI Express for graphics? What are the differences?**

A . PCI Express is the next generation interface not only for graphics cards, but also for I/O cards. PCI Express is a scalable interface, and depending on the chipset the system can have multiple PCI Express connections with various bandwidths. For graphics cards, the defined standard is "by sixteen" (or x16). This implementation of PCI Express provides twice the unidirectional bandwidth and four times the peak bandwidth as AGP 8X. The PCI Express specification also allows for 75 W from the motherboard to the graphics cards. This is three times as much power as the standard AGP 8X specification.

Q . **What graphics cards are available?**

A .

Graphics card	HP Z200	HP Z200 SFF	HP Z400	HP Z600	HP Z800
Professional 2D					
Intel® HD Graphics	X (dual core only)	X (dual core only)			
NVIDIA Quadro NVS 295 (256 MB)	X	X	X	X	X
NVIDIA NVS 300 (512 MB)	X	X	X	X	X
NVIDIA Quadro NVS 450 (512 MB)			X	X	X
Entry 3D					
NVIDIA Quadro FX 380 LP (512 MB)		X			
NVIDIA Quadro FX 380 (256 MB)	X		X	X	X
ATI FirePro V3700 (256 MB)	X		X	X	X
ATI FirePro V3800 (512 MB)	X		X	X	X
ATI FirePro V4800 (512 MB)	X		X	X	X
NVIDIA Quadro FX 580 (512 MB)	X		X	X	X
NVIDIA Quadro 600 (1 GB)	X	X	X	X	X

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Graphics card	HP Z200	HP Z200 SFF	HP Z400	HP Z600	HP Z800
Mid-range 3D					
NVIDIA Quadro FX 1800 (768 MB)	X		X	X	X
NVIDIA Quadro 2000 (1 GB)	X		X	X	X
ATI FirePro V5700 (512 MB)	X		X	X	X
High-end 3D					
ATI FirePro V5800 (1 GB)	X		X	X	X
NVIDIA Quadro FX 3800 (1 GB)			X	X	X
ATI FirePro V7750 (1 GB)			X	X	X
NVIDIA Quadro FX 4800 (1.5 GB)			X	X	X
Elemental Accelerator Software for NVIDIA Quadro					X
NVIDIA Quadro FX 5800 (4 GB)					X
ATI FirePro V8800 (2 GB)					
NVIDIA Quadro 4000 (2 GB)			X	X	X
NVIDIA Quadro 5000 (2.5 GB)			X	X	X
NVIDIA Quadro 6000 (6 GB)				X	X
NVIDIA Tesla C1060					X
NVIDIA Tesla C2050					X

Q . **Should I buy a graphics card with 256 or 512 MB or 1 GB of memory?**

A . Graphics performance is dependent upon many factors, including the amount of video memory. Higher performing cards also include bigger and faster GPUs, more memory bandwidth, and tend to have more features like dual-link connectors and support for stereo. The higher performance graphics cards will also have more memory (and a higher price). A dual display configuration at 1920 x 1200 pixels will allocate about 70 MB for the frame

buffer. The remaining graphics memory will be used to store textures, display lists (graphics data sent by your applications), and other data specific to graphics. If your application would benefit from more storage space for these items, then you should purchase a graphics card with more memory.

Drives

Q . What optical drives* are available with the HP Z Workstations?

A .

HP Z200:	DVD-ROM, DVD+/-RW DL Super Multi, HP Blu-ray Writer**, optional 22-in-1 Media Card Reader
HP Z00 SFF:	DVD-ROM, DVD+/-RW DL Super Multi, optional HP Blu-ray writer**, optional 22-in-1 Media Card Reader
HP Z400:	DVD-ROM, DVD+/-RW, HP Blu-ray Writer**, optional 22-in-1 Media Card Reader
HP Z600:	DVD-ROM, DVD+/-RW, Slot-load DVD+/-RW, HP Blu-ray Writer**, optional 22-in-1 Media Card Reader
HP Z800:	DVD-ROM, DVD+/-RW, Slot-load DVD+/-RW, HP Blu-ray Writer**, optional 22-in-1 Media Card Reader

*Actual speeds may vary. Does not permit copying of commercially available DVD movies or other copyright protected materials. Intended for creation and storage of your original material and other lawful uses. Double Layer discs can store more data than single layer discs. However, double-layer discs burned with this drive may not be compatible with many existing single-layer DVD drives and players.
**As Blu-ray is a new format containing new technologies, certain disc, digital connection, compatibility and/or performance issues may arise, and do not constitute defects in the product. Flawless playback on all systems is not guaranteed. In order for some Blu-ray titles to play, they may require a DVI or HDMI digital connection and your display may require HDCP support. HD-DVD movies cannot be played on this workstation.

Q . Do the HP Z Workstations offer and support SATA 3.0 Gb/s hard drives?

A . Yes.

HP Z200	Up to (3) 3.5-inch 7200 rpm SATA drives[7]: 160, 250, 320, 500 GB , 1 TB, 1.5 TB; 4.5 TB max; Up to (3) 2.5-inch 10K rpm SATA drives[7]: 160, 300 GB, 0.9 TB max
HP Z200 SFF	Up to (2) 3.5-inch 7200 rpm SATA drives[7]: 160, 250, 320, 500 GB, 1 TB 2.0 TB max Up to (2) 2.5-inch 10K rpm SATA drives[7]: 160, 300 GB, 0.6 TB max
HP Z400:	Up to (4) 3.5-inch 7200 rpm SATA drives[7]: 160, 250, 320, 500 GB, 1, 1.5 TB, 2 TB, 8 TB max Up to (4) 2.5-inch 10K rpm SATA drives[7]: 160, 300, 600 GB SFF, 2.4 TB max
HP Z600:	Up to (3) 3.5-inch 7200 rpm SATA drives[7]: 160, 250, 320, 500 GB, 1, 1.5, 2 TB, 6 TB max Up to (4) 2.5-inch 10K rpm SATA drives[7]: 160, 300, 600 GB SFF, 2.4 TB max Note: Third and fourth drives occupy one external optical bay.
HP Z800:	Up to (5) 3.5-inch 7200 rpm SATA drives[7]: 160, 250, 320, 500 GB, 1, 1.5 TB, 2 TB, 10 TB max; Up to (6) 2.5-inch 10K rpm SATA drives[7]: 160, 300, 600 GB SFF, 3.6 TB max

Q . Do the HP Z Workstations support Serial ATA (SATA) RAID?

A . Yes. The chipset used on the HP Z Workstations has an integrated 6-channel SATA controller with RAID support for RAID 0 (striped), RAID 1 (mirrored), RAID 5 (parity), and RAID 10 (striped and mirrored). You can choose to have a high performance RAID 0 array of hard

drives where data is striped across multiple hard drives (this RAID method greatly improves data access times and system performance). You can choose to have a highly reliable RAID 1 array of hard drives, where data is duplicated to multiple hard drives at once (this RAID method creates a backup copy of all your data in real time). You can choose to implement a RAID 5 array, which protects against data loss and provides faster throughput. Data is distributed across at least two hard disks, with error correction information stored on an additional disk. Finally, you can choose to implement a RAID 10 array, which offers the advantages of RAID 0 and RAID 1 by utilizing four hard disks.

Q . **What serial attached SCSI (SAS) drives and controllers are offered**

A . We offer a wide selection of SAS disk drives and controllers. The faster spindle speeds (15K rpm) and the high bandwidth controllers (3.0 Gb/s) result in very fast access to your data. We offer two different PCI SAS controllers: an entry 4-channel SAS controller with basic hard drive connectivity/control and RAID functionality, and a full-featured 8-channel SAS controller with an external connector and comprehensive RAID functionality. We offer the following SAS drives:

HP Z400:	Up to (4) 3.5-inch 15K rpm SAS drives[7]: 146, 300, 450, 600 GB, 2.4 TB max
HP Z600:	Up to (3) 3.5-inch 15K rpm SAS drives[7]: 146, 300, 450 GB, 1.35 TB max Note: Third and fourth drives occupy one external optical bay.
HP Z800:	Up to (5) 3.5-inch 15K rpm SAS drives[7]: 146, 300, 450, 600 GB, 3 TB max

Q . **Do the HP Z Workstations offer and support solid-state drives?**

A . Yes.

HP Z200	Up to (3) 2.5-inch SATA solid state drives[7]: Intel X25-M 160 GB, 480 GB max
HP Z200 SFF	Up to (2) 2.5-inch SATA solid state drives[7]: Intel X25-M 160 GB, 320 GB max
HP Z400:	Up to (4) 2.5-inch SATA solid state drives[7]: Intel X25-M 160 GB, 640 GB max
HP Z600:	Up to (4) 2.5-inch SATA solid state drives[7]: Intel X25-M 160 GB, 640 GB max Note: Third and fourth drives occupy one external optical bay.
HP Z800:	Up to (5) 2.5-inch SATA solid state drives[7]: Intel X25-M 160 GB, 800 GB max

Chassis design

Q . **What's special about the new chassis?**

A . The HP Z Workstations' sleek new industrial design—brushed aluminium side panels, tool-less access chassis, integrated handles, and visually cable-less engineering—creates new standards for ease of service, lowered acoustics, and energy efficiency.

Energy efficiency

Q . **What is HP WattSaver?**

A . HP WattSaver is a BIOS-configurable feature that, when activated, enables the system to dissipate less than 1 Watt in standby and hibernate with no impact to run and sleep power modes. This HP innovation is available at product launch for all Z platforms even though this capability is not required by EU Directive 2005/32/EC, enacted by the European Union member countries, until 2010.

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Operating systems

Q . **What operating systems are available on the new HP Z Workstations?**

A . A variety of OSs are available, including the following. Please note that the exact OSs carried by each workstation vary by product. For more information, see individual product data sheets and QuickSpecs.

Genuine Windows® 7 Professional 32-bit*
Genuine Windows® 7 Professional 64-bit*
Red Hat Enterprise Linux WS5 (as drop-in-the-box only)
Novell Suse SLED 11(HP Z200/HP 200 SFF/HP Z400 Workstations only)

*Windows 7 systems may require upgraded and/or separately purchased hardware and/or a DVD drive to install the Windows 7 software and take full advantage of Windows 7 functionality. See http://www.microsoft.com/windows/windows-7 for details.
** Windows® XP Professional is preinstalled on this system and includes end user rights and media for Windows 7 Professional. You may only use one version at a time. You must back up all data (files, photos, etc.) before uninstalling operating systems to avoid loss of your data.
***Windows Vista Business disk may also be included for future upgrade if desired. To qualify for this downgrade an end user must be a business (including governmental or educational institutions) and is expected to order at least 25 customer systems with the same custom image.
****Certain Windows Vista product features require advanced or additional hardware. See www.microsoft.com/windowsvista/getready/hardwarereqs.mspx and www.microsoft.com/windowsvista/getready/capable.mspx for details. Windows Vista Upgrade Advisor can help you determine which features of Windows Vista will run on your computer. To download the tool, visit www.windowsvista.com/upgradeadvisor.

Q . **Is dual OS preload an option?**

A . Dual OS preload will not be offered due to restrictions of licensing agreements.

Q . **What is Parallels® Workstation 4.0 Extreme?**

A . Parallels Workstation Extreme is the first workstation virtualization solution to support Intel® Virtualization Technology for Direct I/O (Intel® VT-d) for full GPU acceleration in a virtual environment. Get a powerful, next-generation virtualization platform with dedicated host graphic and networking resources to virtualize 3-D, visualization and hi-definition video programs at full speeds.

Q . **What HP Workstations have Parallels® Workstation 4.0 Extreme?**

A . Parallels Workstation Extreme is available exclusively on the HP Z800 Workstation.

Linux

Q . **Will the HP Z Workstations support Linux?**

A . Yes. Red Hat RHEL WS 4 (preload and HPIKL) and RHEL 5 Client (HPIKL) are available. RHEL WS 4 is not supported on HP Z200 and HP Z200 SFF models.

Q . **What is the HP Installer Kit for Linux?**

A . The HP Installer Kit for Linux (HPIKL) is an HP-provided CD to be used in conjunction with a RHEL installation to complete your Linux workstation installation. Included on the HPIKL are:

- HP Driver CD for Red Hat Enterprise Linux WS 4 and 5 Client (RHEL WS 4 is not supported on HP Z200 and HP Z200 SFF models.)
- NVIDIA and ATI accelerated graphics drivers that have passed HP quality standards and are compatible with the hardware platform and RHEL releases.
- HP Documentation links
- Additional hardware drivers provided by HP that are not part of the standard Red Hat Enterprise Linux releases.

For information on how to use the HP Driver CD, refer to the HP Linux Workstation User manual at http://www.hp.com/support/linux_user_manual.

Q . Does the HP Installer Kit for Linux actually contain the Red Hat Box OS?

A . No, you must obtain the Red Hat Box Set OS of your choice. The HP Installer Kit for Linux is a CD set to be used in conjunction with an RHEL install. Red Hat requires that you purchase Red Hat Enterprise WS 4 or 5. RHEL WS 4 is not supported on HP Z200 and HP Z200 SFF models.

Q . What value does HP bring to Linux on Personal Workstations?

A .

- HP has a dedicated Linux R&D team with 25+ years of experience in OS and driver development
- HP has close relationship with multiple third-parties to enable the complete Linux workstation solution
- HP engineering provides extensive pre-sales technical support
- HP publishes detailed documents, drivers, and white papers on the support website regarding Linux on HP Workstations.

Q . Where can I find technical information to guide my installation, configuring, or customizing of my Linux workstation solution?

A . At http://www.hp.com/support/linux_user_manual, under "setup, install, and configure" you will find multiple white papers on Linux configuration tips such as enabling large memory configurations, hyper threading, multi-headed graphics configurations.

Manageability

Q . What manageability features are available on HP Personal Workstations *?

A . HP Client Management Solutions help you simplify management of our workstations and reduce total ownership costs. These integrated solutions are a result of extensive work between HP and its partner, Altiris, a leading provider of manageability solutions. HP Client Manager Software is a free of charge download available with all HP Personal Workstations. It allows you to centrally track, monitor, and manage the hardware aspects of HP client systems on your network. Other benefits include:

- Ability to get valuable hardware information such as CPU, memory, video, and security settings
- Monitor system health to fix problems before they occur
- Install drivers and BIOS updates without visiting each workstation
- Remotely configure BIOS and security settings
- Automate processes to quickly resolve hardware problems
- Local recovery

In addition, the new HP Z200 offers support for Intel Active Management Technology™ which enables advanced technology for remotely managing PCs out-of-band when used with the supported Intel LAN controller.

*Available on Microsoft Windows-based systems.

Q . **What is HP Performance Advisor*?**

A . HP Performance Advisor is a renamed, revamped, and completely overhauled version of the former HP Performance Tuning Framework software. This ultra-savvy software wizard will walk you through how to configure and customize your system, helping you get the most out of your HP Workstation from day one—and every day after. Designed by HP computer techies for non-techies to use and understand, HP Performance Advisor is the simplest and most effective way to make sure your computer is always operating at its optimum potential.

Just launch this program anytime you want to check in on the health of your system. With a few clicks of the mouse, you'll find out what's working great, what's not, and the information you need to improve your system's stability and performance. HP Performance Advisor also consolidates information on each new application, driver, font and widget you install, so you can re-allocate resources, maximize memory, eliminate conflicts, and keep your system running fast and smooth.

If you need to troubleshoot a hardware or system issue, you'll find all the latest diagnostics pulled into one convenient screen. You can even e-mail the information directly to HP Technical Support for more effective analysis and repair.

*Available on Microsoft Windows-based systems.

Security

Q . **What security features are available on the HP Z Workstations?**

A .

Security feature	HP Z200	HP Z200 SFF	HP Z400	HP Z600	HP Z800
Padlock support (padlock optional)	X	X	X	X	X
Cable Lock support (cable optional)	X	X	X	X	X
Serial, parallel, USB enable/disable	X	X	X	X	X
Removable media write/boot control	X	X	X	X	X
Power-on password	X	X	X	X	X
Setup password	X	X	X	X	X
Universal chassis clamp lock (optional)	X	X	X	X	
Kensington cable lock (optional)	X	X	X	X	X

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Smart cover solenoid lock (optional)	X	X	X	X	
Chassis intrusion sensor (optional)	X		X	X	X

Options and modules

Q . **What options are available for the new HP Z Workstations?**

A . For a complete list of all options for the HP Workstations, please go to: http://www.hp.com/workstations/pws/.

Warranty and support

Q . **What is the warranty and support for HP Workstations with Windows?**

A . The standard warranty for the HP Personal Workstations is 3-3-3 limited warranty (three years parts, three years labor, and three years next business day on-site).*

* HP Care Pack Services extend service contracts beyond the standard warranties. Service starts from date of hardware purchase. To choose the right level of service for your HP product, use the HP Care Pack Services Lookup Tool at www.hp.com/go/lookuptool. Additional HP Care Pack Services information by product is available at www.hp.com/go/carepack. Service levels and response times for HP Care Packs may vary depending on your geographic location.

Q . **What is the warranty and support for HP Workstations with Linux?**

A . The warranty for HP Workstations with Linux is the standard 3-3-3 limited warranty with 90 days of OS configuration and installation assistance.

Q . **Will HP stand behind Linux when I have problems?**

A . HP is the first place for support. Hardware and software warranties for the workstations with Linux will be the same as that of the Windows workstations. Extended hardware warranties and software support options will also be available for purchase for if you need extended coverage.

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Notes:

1 Dual-, Quad-, and Six-Core technologies are designed to improve performance of multithreaded software products and hardware-aware multitasking operating systems and may require appropriate operating system software for full benefits; check with software provider to determine suitability; Not all customers or software applications will necessarily benefit from use of these technologies.

2 This workstation does not support the Intel Core 2 Extreme processor over-clocking feature.

3 64-bit computing on Intel architecture requires a computer system with a processor, chipset, BIOS, operating system, device drivers and applications enabled for Intel® 64 architecture. Processors will not operate (including 32-bit operation) without an Intel 64 architecture-enabled BIOS. Performance will vary depending on your hardware and software configurations. See www.intel.com/info/em64t for more information.

4 Intel's numbering is not a measurement of higher performance.

5 Each processor supports up to 2 channels (HP Z200/HP Z200 SFF) or 3 channels (HP Z400/HP Z600/HP Z800) of DDR3 memory. To realize full performance at least 1 DIMM must be inserted into each channel. To get full 6 channel support, 2 processors MUST be installed.

6 Intel® Turbo Boost technology requires a PC with a processor with Intel Turbo Boost capability. Intel Turbo Boost performance varies depending on hardware, software, and overall system configuration. See www.intel.com/technology/turboboost for more information.

7 For hard drives, 1 GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 8 GB of hard drive (or system disk) is reserved for the system recovery software for Windows XP and XP Pro, up to 12 GB for Windows Vista, and up to 20 GB for Windows 7.

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